

ZX-APPEAL

VANCOUVER SINCLAIR USERS GROUP

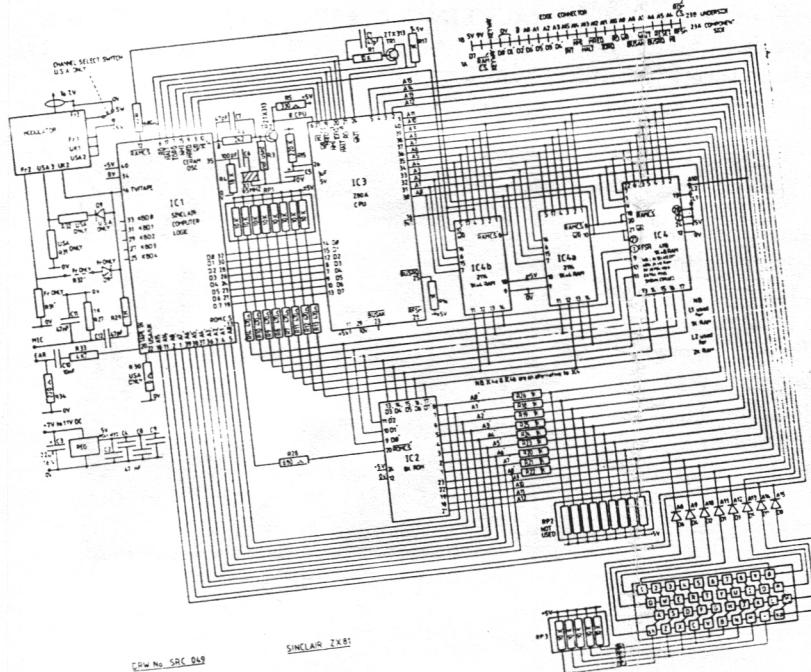
next meeting:

KILLARNY COMMUNITY CENTRE
6260 KILLARNY STREET
VANCOUVER

FRIDAY; 7:00PM

June 9, 1989

ZXAppeal is a monthly newsletter put out by the Vancouver Sinclair Users Group. For more information on the group and ZXAppeal see the backcover.



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INSIDE:
VINCE'S
SUPER
ZX81

THIS ISSUE.....

Again just a couple of club submissions this month but they come from ever productive members: Fred N. is again back with another article for ZX81ers, a print font you might think familiar; Vince L. offers the latest in a series of upgrade expansion projects for the ZX81. (Vince, this has to stop! You'll turn the ZX81 into a 'real' computer if you don't watch out!) Out-of-town member Seward Warner sends along a program printout for ZX81. This is an adventure game and Seward includes a map of the game layout for those who might get stuck. Seward says this one is a goodie so be sure to try it out. Also one or two other items gathered from hither and yon.

***INSOMNIAC ELECTRONICS UPDATE ***

Gerd and I have been able to contact Jim Horne and are helping Jim straighten things out. Jim was not keeping very good records for a while and has lost track of some of the orders sent to him. *If anyone sent an order to Jim but has not heard back they should contact myself at the address on the back cover and describe their order and the manner of remittance made.* Gerd and I will try to have their money refunded or order filled. We'll try to help but we can't take any responsibility for any lack of performance by Jim.

BITS & PIECES.....

... you were no doubt wondering what happened at the Annual Elections help at the April meeting. We didn't have them. After some discussion it was decided by all present that it was kind of silly having elections just as our activities were starting to wind down for the summer. So we decided that we'd hold off until we come back after the summer break and have elections at the October meeting when everyone is settling in for a winter's computing.

... be sure to attend the June meeting. Not only is it the last meeting before the summer break but I'll have my slides of the CATS CapitolFest.

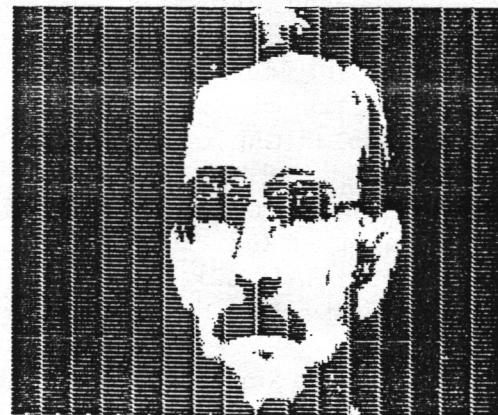
... the group was able to purchase a ZX81 disc drive system from Jim Horne and the ZX81 program librarian is busy cataloging our very substantial library.

... glad to report that Time Designs Magazine was at the CATS 'Fest and distributed copies of the latest issue. Tim made no bones about the fact that due to a number of reasons he had been quite behind but had every intention of hanging in for the long run and would be bringing everyone up to date. Prior to the 'Fest I received a personal note from Tim thanking us for our understanding and support.

... sorry to report that I was told that Quantum Levels magazine will probably cease after the next issue, if there is one. We had hoped that with the inclusion of the SyncWare News subscribers that QLs would keep on keeping on for a while. The problem is not so much the lack of subscribers but the lack of material. There just is not enough new material being written to support these publications.

... rumours of Uncle Clive's nuptials are a tad premature but are scheduled to happen Junish, a little birdy told me - if cold feet don't set in.

THIS IS THE LAST ISSUE BEFORE OUR SUMMER BREAK SO IF WE DON'T SEE YOU AT THE MEETING HAVE A FUN AND SAFE SUMMER AND WE'LL SEE YOU IN SEPTEMBER.



Rod

May 12/89 Minutes

-by your HUMBLE scribe

The meeting was thumped to order by Gerd with a novel printer cable gavel at 19:30. There were 11 diehard spirits present; one came late and one left early.

Gerd started off with a description of his trip to the CATS 'Fest. He picked up an armful of goodies including a QLVision monitor. Zebra was at the Fest with a pile of stuff they were trying to unload. The show itself was held in a large convention room with a lot of stuff for sale at a number of tables. Then ensued a protracted discussion regarding various visits to the Smithsonian Institute. It seems the CATS folk thought Wilf Rigter was going to the Fest and scheduled him to give a talk. Instead Gerd ended up giving a talk on the Delta Device. Gerd mentioned he'd thought about going through the White House, but had second thoughts when he noticed the lineup was a mile long.

Glenn Read, in his VP report, mentioned that he had access to RGB monitors @ \$75.00. These are old Telidon monitors with a conversion board. [Out-of-towners: Telidon was a viewdata experiment that the Telephone Company ran a few years ago.]

There was a discussion regarding Gerd's trip to the Boeing Surplus store in south Seattle. All the computer stuff was expensive; the non-tech stuff was cheap.

It was mentioned the Z88 seems to have found a market among MAC users who need a portable and don't care about MSDOS compatibility (the Z88 can up/download files to/from the MAC...ed). You will forgive me if scepticism rules this curmudgeon's heart.

It seems there is a Sinclair C-5 [remember the electric golf cart?] for sale at Stanley Park Scooter Rentals - \$1000!! Glenn also mentioned there are Adam Expansion

Module #3 units for sale at RP Electronics for a mere \$40.00.

Glenn is going to do a survey on computer communications. Expect questions.

Gerd, the Book Librarian had nothing new to report. Some new tapes from Fred N. were left at home.

Bill Rutter the 2068 Librarian had nothing new to report.

There was mention of the upcoming Eptech Show in Victoria this June 21/89.

Rod H. the Treasurer & Editor was not present. It seems that a division of labour has solved our newsletter problem: Rod will continue to do the editing, & now Rusty Townsend will do the publishing (mailing). Rod will be doing a slide show of his CATS-Fest trip at the next meeting.

There was a request for help. If anybody knows anything about the HAVINFO terminals please contact Gerd B.

A visitor, Bob Verge, introduced himself. He is looking to use the ZX81 as a welding controller. Looks like he will be pulling on Harry's coattail. Meanwhile the hardware group is, ummm, sort of on hold.

Ken Abramson presented some copies of Usenet messages on Cold Fusion he read through his account at SFU. Ken then presented his potato power supply driving an LCD clock. [remember dissimilar metals in an acid?]

Harvey presented some QL magazines and Quanta newsletters for anyone who is interested. He also spoke of the difficulties of maintaining the Usenet habit.

As we ran out of steam, the meeting faded from a dull roar to one on one conversations.

Let it be known to all
that:

In recognition of
his
past contributions
and support
to

SINCLAIR COMPUTING

the
Vancouver Sinclair User Group
is pleased to confer upon

FRED NACHBAUR

the status of

LIFE MEMBER

Dated this 14th day of April, Nineteen Hundred and Eighty Nine.



per V.S.U.G.

This is a reduced copy of the
Certificate that was sent to
Fred as a symbol of our
respect and appreciation.

...meeting date!!

**Last meeting before
the summer break!!**

JUN / 89						
SUN	MON	TUE	WED	THU	FRI	SAT
#	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	#	#	#

The 192K ZX/T5 Laptop Project

by V. Lee

The latest craze to hit the computing world is the "Laptop". These portable battery powered computers possess the computing powers of its desktop cousins, yet they are small enough to fit on ones lap, hence their name.

Not being one to be left behind in the crowd, how about a ZX81/T5100 laptop? The ZX/T5 is already a portable computer because of its small size. Package it up with battery, extended memory, portable screen, full size keyboard, tape recorder... and poof, a ZX/T5 Laptop.

The power will be obtained from a rechargeable 6V "Gell Cell" with 4AH capacity, (A method borrowed from the Vancouver Robot Club.) These lead acid batteries are maintenance free and are made by several manufacturers including Yuasa and GS Batteries. They are superior to traditional rechargeable nickel-cadmium batteries in this application since nickel-cadmiums have a characteristic known as "memory". They must be used from fully charge to discharge or they will eventually lose their capacity to store a full charge. This is acceptable when it comes to powering a radio but in a computer, it would mean losing data in order to "cycle" the battery. Lead acid cells are just the opposite. They like to be fully charged.

The ZX/T5 onboard regulator circuitry will have to be redesigned in order to obtain a regulated 5V from a 6V battery and allow the battery to be recharged when the ZX/T5 9V adaptor is plug in. Take extreme care with the polarities. Rechargeable Cells can severely damage equipment if they are accidentally shorted. The earphone plug on the 9V adaptor should be changed to a barrel type DC plug for the recharging circuit. Earphone plugs tend to short themselves when they are first inserted into their jacks.

The circuit is set up to fully charge the battery in 14 hrs. With the system drawing about 400mA, the battery should last up to 9 hours. However the battery will have a longer life span if it is never fully discharged. A maximum of 4 hours operating time between charges should be the guideline.

Using a 12V Gell Cell would not reduce the amount of modifications required. A

different charging system would have to be implemented since the 9V adaptor could not supply the voltage required, a 6V tap would have to be provided for the tape recorder and monitor and the Cell would be twice as big in size in order to provide the same "AH" rating and therefore add additional weight to the system.

The 64K NVM upgrade which appeared in the Feb/89 ZX-Appeal will now be expanded to 192K with the additions of two 32K CMOS low power SRAMs and two 32K CMOS EEPROMs. The new memory chips are connected in parallel to memory chip U5 with the exception of the CS lines which are connected to the rotary switch. Write Protect resistor R4 is changed from 10K to 4.7K. The 27C256 EEPROM pin 1 is VPP and pin 28 is VCC. Both pins should be tied to +5V. Pin 27 is A14 and should be connected to pin 1 of the 82256LP SRAM.

Keeping the computer in the normal 16K mode, the area above 32K can be switched in and treated by the operating system "Ramdos" as "diskdrives". Two banks will just contain EEPROMs of "archived" programs. Two banks will contain SRAM which will allow programs to be saved and loaded. And two other banks will be used for storing relocated programs or used as a third and fourth "drive".

There will also be two new functions added. One is called "PARK" which will disable the "drives". Switch this function in along with the Mode Switch in the "NORMAL" position before turning off the computer. This prevents the data from being corrupted as the system turns on or off. Leave the Write Protect switch on as this protects the data when the computer is on.

The second new function will not only switch in the "AUXILIARY" RAM in the 32-48K region but also produce the display echo in the 48-64K region. This allows 16K versions of WRX16 software to run without having to modify the software.

The T51016 Rampack cannot be use since it requires 9V which is not available.

The Z80 CPU will be replaced with its CMOS version and eventually the ROM will be removed and burned into the first 8K block of one of the CMOS EEPROMs. This reduces the amount of power consumption. The decoding will then have to be changed. Remove the 4.7K pull-up resistor from whichever EEPROM contains the "ROM". Connect a wire from that EEPROM CS to pin 29 of the old ROM footprint.

The tape recorder will mainly be used for backing up programs using a fast save/load utility like SDS.

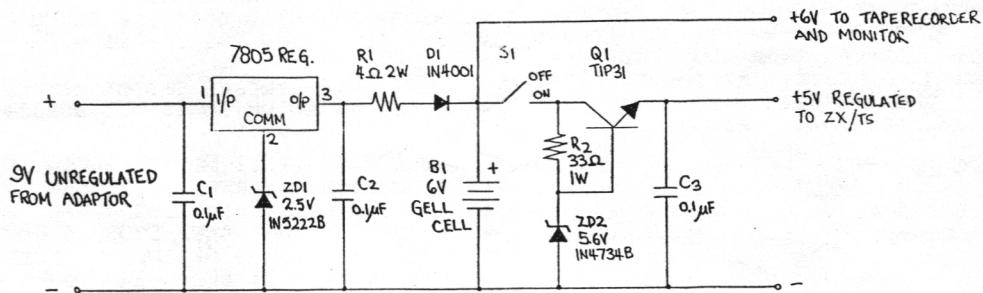
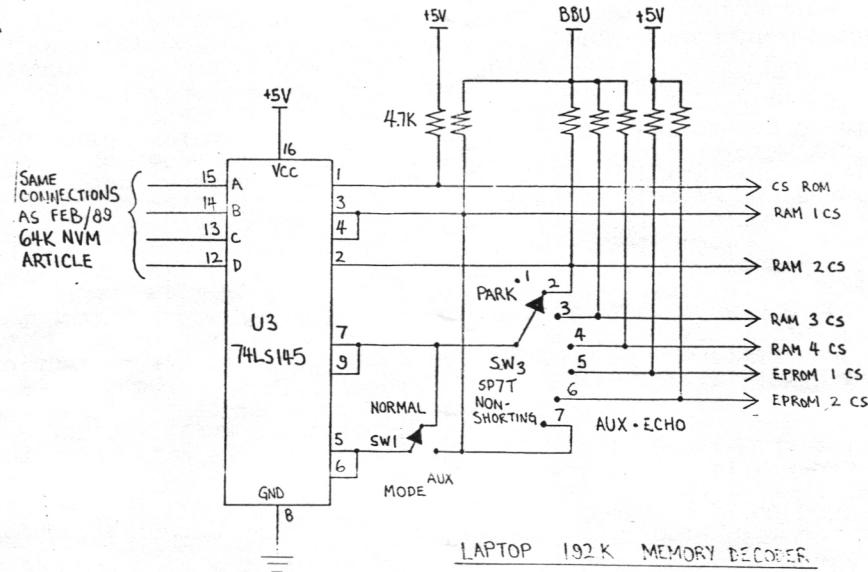
The best monitor for this application is the new four inch flat screen televisions. The screen is small, but this particular model that I saw, had a monitor input and operated at 6V. The whole unit was the size of a paperback book. LCD screen televisions do not have the resolution to display characters but there are LCD displays especially designed for computers but they are expensive.

The entire system will be assembled inside an attache case. The display will be mounted on the top lid while the computer, the full size keyboard, the cassette recorder and the battery supply mounted on the bottom lid. The TS2040

printer will not be included as it adds additional weight and requires a different power arrangement.

I've already hooked up the four 32K SRAMs. The next step now is to look for a suitable display. I think a four inch screen is still too small. Eventually the CMOS Z80 and the EPROM options will be added and then the battery supply.

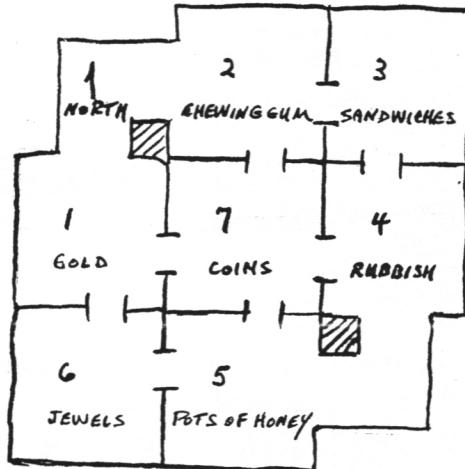
Once the system is fully functional, the circuits will be fine tuned. Additional changes will appear as new functions are added. And then a final article on the Laptop will be presented. In the meantime you are welcome to the use of these ideas. And if you have any suggestions and ideas, I'll be more than interested in hearing about them.



BANK SELECT SWITCH POSITION	MODE SWITCH "AUX OVERRIDE" PARK	1	2	3	4	5	6	7
		RAM 2 CS	RAM 3 CS	RAM 4 CS	EPROM 1 CS	EPROM 2 CS	AUX - ECHO	
MEMORY MAP	64K		RAM 2 NVM 8K NVM ECHO	RAM 3 NVM	RAM 4 NVM	EPROM 1 ARCHIVE	EPROM 2 ARCHIVE	DISPLAY ECHO
	48K	AUX NVM						AUX NVM
	32K		16K RAM	16K RAM	16K RAM		16K RAM	16K RAM
	16K		8K NVM ROM	8K NVM ROM	8K NVM ROM		8K NVM ROM	8K NVM ROM
OK								

EXPANDED MEMORY MAP

This program was sent in by Seward Warner. Seward says he got it from a book from Britain and says it's a pretty good game. The object is to gather all the treasures in one room in 28 moves or less. The map shows the various moves of the game.



1 GOTO 15
 5 REM DATA = W.11.02.88
 10 SAVE "TREASURE HUNT"
 15 PRINT AT 8,0;"===== PLEASE
 E STAND BY ====="
 16 FOR I=1 TO 150
 18 NEXT I
 20 REM READ DATA
 25 FAST
 30 LET P1=1
 35 LET P2=2
 40 GOSUB 1999
 99 REM INIT DATA
 100 DIM N(7)
 101 DIM E(7)
 102 DIM S(7)

```

103 DIM W(7)
104 DIM T(7)
105 DIM E$(32)
106 DIM R$(7,21)
107 DIM T$(7,13)
110 FOR K=1 TO 7
112 GOSUB 4999
115 LET N(K)=VAL U$
117 GOSUB 4999
120 LET E(K)=VAL U$
122 GOSUB 4999
124 LET S(K)=VAL U$
126 GOSUB 4999
128 LET W(K)=VAL U$
130 NEXT K
140 FOR K=1 TO 7
145 GOSUB 4999
150 LET R$(K)=U$
160 NEXT K
170 FOR K=1 TO 7
175 GOSUB 4999
180 LET T$(K)=U$
185 GOSUB 4999
187 LET T(K)=VAL U$
190 NEXT K
200 LET M=0
210 LET C=0
220 LET F=0
230 LET U=0
240 LET X=0
250 LET Y=0
299 REM HELP S/R
300 GOSUB 999
349 REM RANDOM SELECT OF ROOM
350 LET R=INT (RND*7)+1
399 REM ROOM I.D.
400 PRINT AT 8,0;E$;AT 8,0;"YOU
  ARE IN ROOM ";R
410 PRINT "IT IS ";R$(R)
420 PRINT "IT CONTAINS - "
429 REM ROOM CONTENTS I.D.
430 FOR K=1 TO 7
440 IF T(K)=R THEN PRINT TAB 15
  ;T$(K)
445 IF T(K)=R THEN LET F=1
450 NEXT K
460 IF F=0 THEN PRINT TAB 15;"N
  OTHING"
470 LET F=0
499 REM PLAYER INPUT
  
```

```

200 PRINT "WHAT DO YOU WANT TO
DO?"
510 LET A$=INKEY$
512 IF A$="" THEN GOTO 510
515 CLS
517 FAST
520 IF A$="H" THEN GOSUB 999
530 IF A$="N" OR A$="E" OR A$="S" OR A$="W" THEN GOSUB 1199
540 IF A$="T" THEN GOSUB 1299
550 IF A$="P" THEN GOSUB 1399
560 IF A$="L" THEN GOSUB 1499
570 IF A$="O" THEN GOTO 6500
580 IF A$="M" THEN GOSUB 1599
599 REM COUNT MOVES
600 LET M=M+1
609 REM TREASURE ALL IN
    ONE ROOM
610 LET W=T(1)
620 FOR K=2 TO 7
630 IF W<>T(K) THEN LET F=1
640 NEXT K
650 IF F=1 THEN GOTO 690
660 PRINT "WELL DONE." // "YOU HA
VE PLACED",,,"ALL OF THE TREASURE
670 PRINT "IN ROOM ",;R," IN ",;M
; " MOVES"
680 GOTO 6000
690 LET F=0
699 REM MOVE CHECK
700 IF M<=28 THEN GOTO 800
710 PRINT AT 10,0;"SORRY," // "
->> YOU'VE RUN OUT OF MOVES <<-
720 GOTO 6000
799 REM PLAYER LOCATION CHANGE
800 IF A$="N" OR A$="E" OR A$="S" OR A$="W" THEN GOTO 400
810 PRINT AT 8,0;E$;"YOU ARE ST
ILL IN ROOM ",;R
850 GOTO 500
999 REM HELP S/R
1000 CLS
1003 SLOW
1005 PRINT "THERE ARE SEVEN ROOM
S IN THE", "MAZE"
1010 PRINT "THERE IS A BOX OF TR
EASURE IN", "EACH ONE"
1020 PRINT "YOU MUST GET ALL THE
BOXES INTO", "THE SAME ROOM"
1050 PRINT // "THE FOLLOWING ARE"
;"ALL ONE-LETTER COMMANDS -"
1060 PRINT // "H(ELP)",TAB 8;"- T
ELLS YOU HOW TO PLAY"
1065 PRINT TAB 8;"(USE FLOOR PLA
N DIAGRAM)"
1070 PRINT "N E S W - USE TO MOU
E";TAB 10;"NORTH EAST SOUTH WEST
"
1080 PRINT "L(OCATE) - PRINTS CUR
RENT";TAB 10;"LOCATION OF TREASU
RE"
1090 PRINT "T(AKE)";TAB 8;"- TO
PICK UP TREASURE"
1100 PRINT "P(UT)";TAB 8;"- TO P
UT DOWN TREASURE"
1105 PRINT "TOUCH Q";TAB 8;"- TO
QUIT"
1107 PRINT "TOUCH M";TAB 8;"- FO
R MOVES REMAINING"
1110 PRINT // "... PUSH ANY KEY T
O CONTINUE ."
1115 PAUSE 4E4
1117 CLS
1120 RETURN

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```

1199 REM MOVE S/R
1200 IF A$="N" THEN LET X=N(R)
1210 IF A$="E" THEN LET X=E(R)
1220 IF A$="S" THEN LET X=S(R)
1230 IF A$="W" THEN LET X=W(R)
1235 SLOW
1240 IF X=0 THEN PRINT AT 8,4;"Y
OU CAN'T GO THAT WAY"
1245 IF X=0 THEN RETURN
1250 LET R=X
1260 RETURN
1299 REM TAKE S/R
1300 SLOW
1305 IF C=1 THEN PRINT AT 8,3;"Y
OU CAN'T CARRY ANY MORE"
1307 IF C=1 THEN GOTO 1370
1310 FOR K=1 TO 7
1320 IF T(K)=R THEN LET Y=K
1330 NEXT K
1340 IF Y=0 THEN PRINT AT 8,7;"T
HIS ROOM IS EMPTY"
1345 IF Y=0 THEN GOTO 1370
1350 LET T(Y)=999
1360 PRINT AT 4,3;E$;"O.K. YOU'RE
CARRYING THE";AT 6,3;E$;T$(Y)
1370 LET C=1
1375 LET Y=0
1380 RETURN
1389 REM PUT S/R
1400 SLOW
1403 IF C=0 THEN PRINT AT 8,0;"Y
OU'RE NOT CARRYING ANYTHING"
1405 IF C=0 THEN GOTO 1450
1407 FAST
1410 FOR K=1 TO 7
1412 FOR L=LEN T$(K) TO 1 STEP -
1
1414 IF T$(K,L)<>CHR$ 0 THEN GOT
O 1420
1416 NEXT L
1420 IF T(K)=999 THEN PRINT AT 8
;0;T$(K, TO L); " PLACED IN ROOM
;R
1430 IF T(K)=999 THEN LET T(K)=R
1440 NEXT K
1450 LET C=0
1455 SLOW
1460 RETURN
1499 REM LOCATE S/R
1500 SLOW
1505 PRINT AT 8,0;"YOU ARE CARRY
ING - "
1510 IF C=0 THEN PRINT TAB 10;;"
NOTHING"
1515 IF C=0 THEN GOTO 1550
1520 FOR K=1 TO 7
1530 IF T(K)=999 THEN PRINT TAB
10;T$(K)
1540 NEXT K
1550 PRINT "CONTENTS OF ROOMS - "
1560 FOR K=1 TO 7
1570 IF T(K)<>999 THEN PRINT T(K
);";";T$(K)
1580 NEXT K
1590 RETURN
1599 REM REMAINING MOVES
1600 SLOW
1605 PRINT AT 8,0;28-M;CHR$ 0;"M
OVES REMAINING"
1610 RETURN
1999 REM DATA FOR N,E,S,W ARRAYS
2000 LET D$="2,7,6,0,"
2010 LET D$=D$+"0,3,7,1," ...cont'd on
2020 LET D$=D$+"0,0,4,2/"
2030 LET D$=D$+"3,0,5,7," page 11

```

THE "SINFONI"™

▀ a proportional character set ▀

problem: given the 8-letter word "sinclair", derive the whole set of characters. here's my solution.

[going to typewriter mode....]

does this character set look at all familiar? or can you work out a few improvements here and there.

this could be fun. let's create an official "sincfont" -- y'all join in.

the distinctive look of this set is partly because it is proportional: little letters like "i" and "t" use up less space than big letters like "o" or "m". this is done using the "sprite print" command in shr-eb.

since only 32 sprites are allowed in shr-eb, sprite sets are re-defined as needed for code 0-31 or 32-b3. this is kept track of by flags f and g, and "defining" routines at line 8000 and 8032.

character width is stored in w\$. w\$[1]=code 0-31, w\$[2]=code 32-63, see lines 7000-7030. the subroutine at 100 prints contents of ts to plot position x,y.

the listing below demo's the potential. machine-code would speed this up a lot, and allow true justification etc. experiment with different set definitions, change w\$ as desired. get those lazy foxes jumping over those quick brown dogs.

only low graphics possible. who wants to expand this to inverse characters? or do we need it?

told you that this character set would warm the mollusks of your heart..... ☺☺☺☺☺☺☺☺☺☺

for...MARCH 1989

```

1~REM FAST V3.0 LOAD
2~REM 641col PRINT
10 REM sinclair font SHREBV3.0

15 LET HR=VAL "20000"
16 LET T2=32
17 LET DEF=8000
18 LET PR=100
19 LET LF=300
20 LET LN=400
30 GOTO 7000
98 REM print contents of t$
99 REM at plot coords x,y
100 FOR I=1 TO LEN T$
105 LET N=CODE T$(I)
110 LET G=(N)>=32)
115 IF NOT N THEN GOTO 150
120 IF (G AND NOT F) OR (NOT G
ND F) THEN GOSUB DEF+T2*6
130 IF G THEN LET N=N-T2
150 LET W=CODE W$(G+1,N+1)
160 IF X+W>255 THEN GOSUB LF
200 IF N OR G THEN IF USR HR TH
N LPRINT SP;N,X,Y
210 LET X=X+W
250 NEXT I
260 RETURN
299 REM linefeed
300 LET X=0
310 LET Y=Y-10
320 IF Y<10 THEN LET Y=10
330 RETURN
399 REM print line with lf
400 GOSUB PR ,
410 GOTO LF
400 REM typewriter
410 IF INKEY$(<>"") THEN GOTO 101

500 IF USR HR THEN PLOT X,Y
510 LET T$=INKEY$
520 IF USR HR THEN UNPLOT X,Y
530 IF T$=="" THEN GOTO 1020
540 IF T$=CHR$ 121 THEN GOSUB L

550 IF T$=CHR$ 118 THEN LET T$=

560 IF T$<"RND" AND T$>"" THEN
GOSUB PR
565 IF T$=="" THEN LET X=X+5
567 IF X>253 THEN GOSUB LF
570 GOTO 1010
599 REM print character set
600 LET T$=""
610 FOR I=0 TO 63
620 LET T$=T$+CHR$ I
630 NEXT I
640 LET Y=110
650 LET X=0
655 LET X=0
657 LET Y=100
660 GOTO PR

```

```

7020 LET U$(1) = ""
7030 LET U$(2) = ""

7040 GOSUB DEF
7045 LET X=0
7047 LET Y=190
7050 IF USR HR THEN CLS
7060 IF USR HR THEN RUN
7065 REM sample usage
7070 LET T$="* A PROPORTIONAL CH
ARACTER SET *"
7090 GOSUB LN
7092 LET T$=""

7095 GOSUB LN
7097 GOSUB LF
7098 GOSUB 6000
7100 LET T$="PROBLEM: GIVEN THE
8-LETTER WORD"
7105 LET Y=160
7107 LET X=0
7110 GOSUB LN
7120 LET T$=CHR$ 11+"SINCLAIR"+C
HR$ 11+", DERIVE THE WHOLE SET O
F CHARACTERS. HERE'S MY SOLUTION
.
7125 GOSUB LN
7130 GOSUB LF
7140 LET T$="GOING TO TYPEWRITER
MODE...."
7145 GOSUB LN
7150 GOSUB LF
7160 LET Y=50
7170 LET T$="BY: "
7175 GOSUB PR
7180 GOTO 1000
7199 REM sprite definitions
    8000=GRP 1, 8032=GRP 2
8000 LET F=NOT PI
8001 IF USR HR THEN LPRINT SD;CO
DE " ",00,00,00,00,00,00,00,00,00,
FF,F1,F1,F1,81,81,81,FF"
8002 IF USR HR THEN LPRINT SD;2,
"FF,8F,8F,8F,81,81,81,FF,FF,FF,F
F,FF,81,81,81,FF"
8004 IF USR HR THEN LPRINT SD;4,
"FF,81,81,81,F1,F1,FF,FF,F1,F
1,F1,F1,F1,FF"
8006 IF USR HR THEN LPRINT SD;6,
"FF,8F,8F,8F,F1,F1,FF,FF,FF,F
F,FF,F1,F1,F1,FF"
8008 IF USR HR THEN LPRINT SD;8,
"FF,D5,D5,D5,D5,D5,FF,FF,81,8
1,81,FF,D5,D5,FF"
8010 IF USR HR THEN LPRINT SD;10
,"FF,D5,D5,FF,81,81,81,FF,00,F0,
90,90,00,00,00,00"
8012 IF USR HR THEN LPRINT SD;12
,"00,70,10,10,00,00,00,00,00,18,
FF,80,FF,01,FF,18"

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```

8014 IF USR HR THEN LPRINT SD;CO
DE ":",00,00,60,00,00,60,00,00,
FF,01,01,0F,08,08,00,08"
8016 IF USR HR THEN LPRINT SD;CO
DE "<,"78,40,40,40,40,40,40,78,
78,08,08,08,08,08,78"
8018 IF USR HR THEN LPRINT SD;CO
DE ">,"00,00,78,08,08,78,00,00,
00,00,78,40,40,78,00,00"
8020 IF USR HR THEN LPRINT SD;CO
DE "=,"00,00,7F,00,00,7F,00,00,
00,08,08,7F,08,08,08,00"
8022 IF USR HR THEN LPRINT SD;CO
DE "-,"00,00,00,7C,00,00,00,00,
00,00,FF,24,3C,24,FF,00"
8024 IF USR HR THEN LPRINT SD;CO
DE "/,"00,00,18,00,FF,00,18,00,
00,00,60,00,00,60,E0,00"
8026 IF USR HR THEN LPRINT SD;CO
DE ",,"00,00,00,00,00,00,60,E0,00,
00,00,00,00,00,E0,E0,00"
8028 IF USR HR THEN LPRINT SD;CO
DE "0",FF,81,81,81,81,81,FF,00,
18,18,18,18,18,18,18,00"
8030 IF USR HR THEN LPRINT SD;CO
DE "2",FF,01,01,FF,80,80,FF,00,
FF,01,01,FF,01,01,FF,00"
8031 RETURN
8032 LET F=SGN PI
8033 IF USR HR THEN LPRINT SD;CO
DE "4"-T2,"81,81,81,FF,01,01,01,
00,FF,80,80,FF,01,01,FF,00"
8034 IF USR HR THEN LPRINT SD;CO
DE "6"-T2,"80,80,80,FF,81,81,FF,
00,FF,01,01,01,01,01,01,00"
8036 IF USR HR THEN LPRINT SD;CO
DE "8"-T2,"FF,81,81,FF,81,81,FF,
00,FF,81,81,FF,01,01,01,00"
8038 IF USR HR THEN LPRINT SD;CO
DE "A"-T2,"00,00,FE,02,FE,82,FE,
00,80,80,FE,82,82,82,FE,00"
8040 IF USR HR THEN LPRINT SD;CO
DE "C"-T2,"00,00,FE,80,80,80,FE,
00,02,02,FE,82,82,82,FE,00"
8042 IF USR HR THEN LPRINT SD;CO
DE "E"-T2,"00,00,FE,82,FE,80,FE,
00,78,40,F8,40,40,40,40,00"
8044 IF USR HR THEN LPRINT SD;CO
DE "G"-T2,"00,00,FE,82,82,FE,02,
FE,80,80,FE,82,82,82,82,00"
8046 IF USR HR THEN LPRINT SD;CO
DE "I"-T2,"80,00,80,80,80,80,80,
00,08,00,08,08,08,08,08,F8"
8048 IF USR HR THEN LPRINT SD;CO
DE "K"-T2,"80,80,82,82,FE,82,82,
00,80,80,80,80,80,80,80,00"
8050 IF USR HR THEN LPRINT SD;CO
DE "M"-T2,"00,00,FF,91,91,91,91,
00,00,00,FE,82,82,82,82,00"

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```

8052 IF USR HR THEN LPRINT SD;CO
DE "O"-T2,"00,00,FE,82,82,82,FE,
00,00,00,FE,82,82,FE,80,80"
8054 IF USR HR THEN LPRINT SD;CO
DE "Q"-T2,"00,00,FE,82,82,FE,02,
02,00,00,FE,80,80,80,80,00"
8056 IF USR HR THEN LPRINT SD;CO
DE "S"-T2,"00,00,FE,80,FE,02,FE,
00,40,40,FB,40,40,40,40,00"
8058 IF USR HR THEN LPRINT SD;CO
DE "U"-T2,"00,00,82,82,82,82,FE,
00,00,00,C6,44,44,44,7C,00"
8060 IF USR HR THEN LPRINT SD;CO
DE "W"-T2,"00,00,92,92,92,92,FE,
00,00,00,E7,24,3C,24,E7,00"
8062 IF USR HR THEN LPRINT SD;CO
DE "Y"-T2,"00,00,82,82,82,FE,02,
FE,00,00,FE,02,FE,80,FE,00"
8063 RETURN
8999 STOP
9000 SAVE "SINCFONT"
9001 PRINT "ENABLE SRAM... WRITE
PROTECT OFF"
9002 PRINT ,,"ENTER RUN FOR DEMO
"
9003 STOP

```

Cont'd from page 8

```

2030 LET D$=D$+"3,0,5,7, "
2040 LET D$=D$+"7,4,0,6, "
2050 LET D$=D$+"1,5,0,0, "
2060 LET D$=D$+"2,4,5,1, "
2099 REM DATA FOR R#
2100 LET D$=D$+"COLD AND CREEPY
DARK AND DINGY, "
2110 LET D$=D$+"GRAY AND GHOSTLY
FOUL AND FOGGY, "
2120 LET D$=D$+"DESERTED AND DES
OLATE, HAUNTED AND HORRIBLE, SPOOK
Y AND SCARY, "
2199 REM DATA FOR T$ AND T
2200 LET D$=D$+"GOLD, 1, CHEWING G
UM, 2, "
2210 LET D$=D$+"SANDWICHES, 3, RUB
BISH, 4, "
2220 LET D$=D$+"POTS OF HONEY, 5,
JEWELS, 6, COINS, 7, "
2250 RETURN
4999 REM PSEUDO READ DATA
5000 IF D$(P2)=CHR$ 26 THEN GOTO
5030
5010 LET P2=P2+1
5020 GOTO 5000
5030 LET USR=D$(P1 TO P2-1)
5040 LET P2=P2+1
5050 LET P1=P2
5060 RETURN
5999 REM CLOSURE
6000 PRINT AT 21,0;"END PROGRAM"

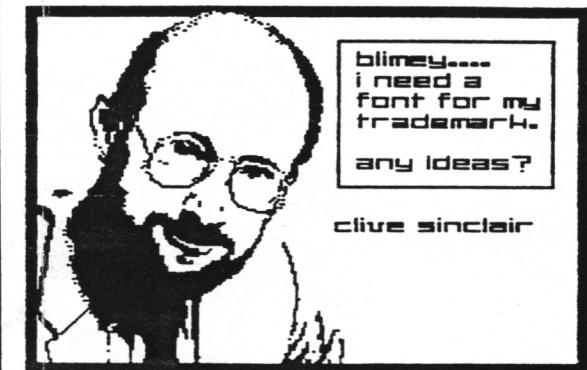
```

ENTERING LINES 7020 AND 7030:
USE GRAPHIC MODE, SHIFTED CHARS.

```

7020: 5,D,D,D,D,D,D,D,D,T,T,
S,4,D,T,T,T,T,D,D,D,D,D,T,
T,5,S,S,S,S
7030: S,S,S,S,S,S,D,D,D,D,D,E,D,
D,7,E,D,7,D,D,D,D,D,D,E,
D,D,D,D,D

```



```

6002 LET D=5
6003 LET D=D-1
6004 IF D<>0 THEN GOTO 6003
6005 PRINT AT 21,0;E$
6010 GOTO 6000
6500 SLOW
6505 PRINT AT 10,14;"BYE"
6510 GOTO 6000

```

```

*****  

1 REM ...from the "Cleveland"
tapes. Author Unknown but credi
ted with thanks.
2 REM ...machine code demo fo
r the 2068
3 FOR b=1 TO 3
4 FOR a=1 TO 704: PRINT "█";:
NEXT a
5 CLS : NEXT b
10 CLEAR 32000
20 RESTORE
30 FOR a=0 TO 15: READ X: POKE
32000+a,X: NEXT a
40 DATA 33,255,63,01,01,24,22,
255,35,11,120,177,200,114,24,248
50 FOR c=1 TO 8: CLS : PAUSE 2
0: RANDOMIZE USR 32000: PAUSE 20
: NEXT c
9997 STOP
9998 SAVE "MC EXAMPLE" LINE 1

```



VSUG

The Vancouver Sinclair Users Group has been in existence since 1982. We are a support group for the owners and users of all SINCLAIR and TIMEX computers.

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